Please type a pros sign (+) inside this box -> +

Based on PTO/SB/08 a & b (05-03)
Approved for use through 05/31/2003. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Subr	stitute for form 1	1449A/P	TO	Application Number	10/066,102	
TRADOMAN				Filing Date	1/31/02	
	NATION DI			First Named Inventor	Steven Teig	
SIAIE	VICINI DI	AFFL	ICAN	Group Art Unit	2825	
(use as	s many sheets a	as neces	sary)	Examiner Name	Garbowski, L.	_
Sheet	1	of	4	Attorney Docket Number	SPLX.P0106	

	RELATED U.S. PATENT APPLICATIONS										
				Name of Potentine or							
Examiner* Initials	Cite No.1			Date of Filing MM-DD-YYYY	Related Application Data						
W	1.	10/066,060	SPLX.P0072	Steven Teig	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.					
W	2.	10/066,160	SPLX.P0073	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.					
W	3.	10/066,095	SPLX.P0074	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.					
S	4.	10/066,047	SPLX.P0078	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.					
W	5.	10/061,641	SPLX.P0079	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.					
W	6.	10/066,094	SPLX.P0080	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.					
W	7.	10/076,121	SPLX.P0081	Steven Teig	02-12-2002	Application with similar, but not identical, specification and drawings as the present application.					
· M	8.	10/062,995	SPLX.P0105	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application,					

Examiner	7-041	Date	
Signature		Considered	J

^{*} EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number(optional). See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

O i P & Please type a plus	sign (+) inside this b	ox → [+		U.S. Patent and Tra der the Paperwork Reduction Act of 199	Based on PTO/SB/08 a & b (05-0 Approved for use through 05/31/2003. OMB 0651-003 ademark Office; U.S. DEPARTMENT OF COMMERC 95, no persons are required to respond to a collection formation unless it contains a valid OMB control numb	3i Œ of
B	Secstitute for form	n 1449A/F	PTO OT	Application Number	10/066,102	
TO THE PROPERTY		- 1001		Filing Date	1/31/02	
STA	RMATION TEMENT BY	DISCLO	OSURE	First Named Inventor	Steven Teig	
J	I E WENT D	I APPL	LICANI	Group Art Unit	2825	_
(4	ise as many sheet	ts as nece	ssary)	Examiner Name	Garbowski, L.	
Sheet	2	of	4	Attorney Docket Number	SPLX P0106	_

	RELATED U.S. PATENT APPLICATIONS									
						with the exception of summary and abstract.				
W	9.	10/066,187	SPLX.P0133	Steven Teig et al.	01-31-2002	Application with the same specification and drawings as the present application, with the exception of summary and abstract.				
M)	10.	10/233,202	CDN.P0008	Steven Teig	08-28-2002	Per the preliminary amendment dated 5/30/03, this application is a CIP of the present application.				
W)	11.	10/229,196	CDN.P0009	Steven Teig	08-26-2002	Per the preliminary amendment dated 5/30/03, this application is a CIP of the present application.				
W	12.	10/288,870	CDN.P0010	Steven Teig	11-06-2002	Per the preliminary amendment dated 5/30/03, this application is a CIP of the present application.				
W	13.	10/219,923	CDN.P0011	Steven Teig	08-14-2002	Per the preliminary amendment dated 5/30/03, this application is a CIP of the present application.				

	FOREIGN PATENT DOCUMENTS									
Examiner* Initials	Cite No.1	Foreign Patent Document Kind Code Office ³ Number ⁴ (if known) ⁶		Kind Code MMA_DD_VVVV Applicant of Cited Document			Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶		
W	14.	JP	03-173471		07-26-1991	Tawada et al.	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.	1		
W	15.	JP	04-000677		01-06-1992	Fujiwara et al.	with English translation of Abstract;			
. M	16.	JP	05-102305		04-23-1993	Sato	with Japanese Patent Office's English	1		

Examiner	Date	
Signature	Considered	1114
		1 ()

^{*} EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number(optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

OIP please type a plus	s sign in inside this box	→ [+]	Under th	Based on PTO/SB/08 a & b (05-03) Approved for use through 05/31/2003. OMB 0651-0031 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number			
1	Sults itute for form	1449A/F	oro		Application Number	10/066,102		
Range	Arte				Filing Date	1/31/02		
STA	DRMATION D	ISCL	OSURE		First Named Inventor	Steven Teig		
Substitute for form 1449A/PTO THE ORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)					Group Art Unit	2825		
					Examiner Name	Garbowski, L.		
Sheet	3	of	4		Attorney Docket Number	SPLX.P0106		

	FOREIGN PATENT DOCUMENTS									
						translation of Abstract; and with English translation of the application.				
W	17.	JP	05-243379	09-21-1993	Kubota	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.				
W	18.	JP	07-086407	03-31-1995	Miura	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.				
W	19.	JP	09-162279	06-20-1997	Yoshida	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.				
W	20.	JP	2000-082743	03-21-2003	lgarashi et al.	with Japanese Patent Office's English translation of Abstract; and with English translation of the application.				

· Examiner Signature	War	Date Considered	11/4

^{*} EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \(^1\) Applicant's unique citation designation number(optional). \(^2\) See Kinds Codes of USPTO Patent Documents at www.usplo.gov or MPEP 901.04. \(^3\) Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). \(^4\)For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. \(^5\) Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. \(^5\) Applicant is to place a check mark here if English language Translation is attached.

Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

OIPE _	Approved for
Please type a plus sign(1) inside this box → +	U.S. Patent and Trademark Office
JUL 1 2 ZOCK 😩	Under the Paperwork Reduction Act of 1995, no person information unle

Based on PTO/SB/08 a & b (05-03) use through 05/31/2003. OMB 0651-0031 ce; U.S. DEPARTMENT OF COMMERCE is are required to respond to a collection of ess it contains a valid OMB control number

	44.1				
Á		1449A/F	то	Application Number	10/066,102
TE TRADITUM	Streetitute for form			Filing Date	1/31/02
	DRMATION DI TEMENT BY			First Named Inventor	Steven Teig
SIA	I E WENT DY	APPL	LICANI	Group Art Unit	2825
	use as many sheets	as nece	ssary)	Examiner Name	Garbowski, L.
Sheet	4	of	4	Attorney Docket Number	SPLX.P0106

NON PATENT LITERATURE DOCUMENTS							
Examiner* C		ite Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, jou serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.					
W	21.	Berger, B. et al., Nearly Optimal Algorithms and Bounds for Multilayer Channel Routing, Journal of the Association for Computing Machinery, pp. 500-542, March 1995.					
W	22.	Chen, H., Routing L-Shaped Channels in Nonslicing-Structure Placement. 24 th ACM-IEEE Design Automation Conference, pp. 152-165, 1987.					
W	23.	Cheng, K. et al., Manhattan or Non Manhattan? A Study of Alternative VLSI Routing Architectures, pp 47-52, 2000.					
W	24.	Chiang, C. et al., Wirability of Knock-Knee Layouts with 45° Wires, IEEE Transactions on Circuits and Systems, Vol. 38, Issue 6, pp 613-624, June 1991.					
\ <u>\</u>	25.	NN71091316, Use of Relatively Diagonal And Rectangular Wiring Planes n Multilayer Packages, September 1971, IBM Technical Disclosure Bulletin, Vol. No. 14, Issue No. 4, pp. 1316-1317.					
N	26.	Overtone, G., EDA Underwriter 2 Finding Space in a Multi-Layer Board, Electronic Engineering, Morgan-Grampian LTD, March 1995, vol. 67, no. 819, pp 29-30.					

Examiner	Date	
Signature	Considered	11/4

Translation is attached.

This collection of information is required by 37CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing the burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

^{*} EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \(^1\) Applicant's unique citation designation number(optional). \(^2\) See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. \(^3\) Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). \(^4\)For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. \(^5\)Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. \(^6\)Applicant is to place a check mark here if English language Translation is attached.



ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18 Stylesheet Version v18.0

Title of Invention

IC layout with non-quadrilateral steiner points

Application Number:

10/066102

Confirmation Number: 6032

First Named Applicant:

Steven Teig

Attorney Docket Number: SPLX.P0106

Art Unit:

2825

Examiner:

Leigh Marie Garbowski

Search string:

(6247853 or 6407434 or 6412097 or

6680150).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
W	1	6247853	2001-06-19	Papadopoulou et al.	B1		
M)	2	6407434	2002-06-18	Rostoker et al.	B1		
W)	3	6412097	2002-06-25	Kikuchi et al.	B1		
W	4	6680150	2004-01-20	Blatchford, Jr. et al.,	B2		

Signature

Examiner Name	Date		
momi	1/14		

APP_ID=10066102